

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1 and 4-6 are pending in the present application, Claim 1 is amended, Claims 2 and 3 are cancelled, and Claims 5 and 6 are added by the present amendment. Support for amendments to Claim 1 is found in the specification as originally filed, for example, at page 33, line 1, to page 23, line 23. Thus, no new matter is added.

In the outstanding Office Action, Claim 3 was objected to; Claims 1 and 4 were rejected under 35 U.S.C. § 102(b) as anticipated by Shirakura et al. (U.S. Patent No. 6,195,185, herein "Shirakura"); and Claims 2 and 3 were rejected under 35 U.S.C. § 103(a) as unpatentable over Shirakura in view of McGrew (U.S. Patent No. 4,411,489).¹

Applicant respectfully traverses the rejection of Claims 1 and 4 under 35 U.S.C. § 102(b) as anticipated by Shirakura, with respect to amended Claim 1 and new Claim 5.

New Claim 5 is directed to an object projection optical system that includes, in part:

an object projection optical system including a spherical lens system configured to form said image displayed by said spatial beam modulator in said one-dimensional direction and a cylindrical lens system configured to condense said object beam on said hologram recoding medium in a direction substantially orthogonal to said one-dimensional direction... wherein

a condensing position of the object beam is controlled by regulating the spacing between said spherical lens system and said cylindrical lens system, wherein a focal distance of the cylindrical lens system and a focal distance of the spherical lens system are selected such that the spatial beam modulator and the one-dimensional diffuser are located at optically conjugate positions.

In a non-limiting example, Applicants' Figs. 2A and 2B show an object projection optical system that includes a spherical lens system [44 and 45] and a cylindrical lens system

¹ Applicants assume the rejection at page 4, paragraph 6 is directed to Claim 3 instead of Claim 4.

[46]. A laser beam [L4] may be projected through a spatial beam modulator [42] to place a holographic image onto the beam. The beam may then be projected through the spherical lens system [44 and 45] to form an image on the one-dimensional diffuser plate in the vertical direction. Finally, the cylindrical lens system [46] may condense the beam in a horizontal direction onto a hologram recording medium [30].

The outstanding Office Action relies on Shirakura as disclosing an object projection optical system with the above recited elements. However, as noted in the outstanding Office Action, Shirakura “does not teach said object projection optical system comprises a spherical lens system for forming said image displayed by said spatial beam modulator in said one-dimensional direction, and a cylindrical lens system for condensing said object beam into said direction substantially orthogonal to said one-dimensional direction.”²

Accordingly, Shirakura does not describe or suggest “an object projection optical system including a spherical lens system configured to form said image displayed by said spatial beam modulator in said one-dimensional direction and a cylindrical lens system configured to condense said object beam on said hologram recoding medium in a direction substantially orthogonal to said one-dimensional direction,” as recited in the independent claims.

Accordingly, Applicants respectfully submit that independent Claim 1 and Claim 4 dependent therefrom, patentably define over Shirakura.

Further, the outstanding Office Action relies on McGrew as describing an object projection optical system comprising a spherical lens system and a cylindrical lens system not found in Shirakura.

McGrew describes using spherical and cylindrical lenses as part of an anamorphic lens system used to compress a beam horizontally while expanding it vertically and used to

² Outstanding Office Action page 4, paragraph 1.

send the beam to an axially elongated vertical cylindrical lens where it is condensed and formed onto the recording medium.³

However, McGrew does not describe or suggest the condensing position of the object beam is controlled by regulating the spacing between said spherical lens system and said cylindrical lens system, wherein the focal distance of the cylindrical lens system and a focal distance of the spherical lens system are selected such that the spatial beam modulator and the one-dimensional diffuser are located at optically conjugate positions.

In other words, McGrew describes condensing the beam but does not describe controlling the condensing by regulating the spacing between said spherical lens system and said cylindrical lens system, wherein the focal distance of the cylindrical lens system and a focal distance of the spherical lens system are selected such that the spatial beam modulator and the one-dimensional diffuser are located at optically conjugate positions.

Therefore, McGrew does not describe or suggest, “a condensing position of the object beam is controlled by regulating the spacing between said spherical lens system and said cylindrical lens system, wherein a focal distance of the cylindrical lens system and a focal distance of the spherical lens system are selected such that the spatial beam modulator and the one-dimensional diffuser are located at optically conjugate positions,” as recited in the independent claims.

Thus, McGrew does not describe or suggest using the spherical lens system for forming an image as is described in Claims 1 and 5.

Therefore, Shirakura and McGrew combined or individually do not describe or suggest at least the elements recited in Claims 1 and 5 or any claim depending therefrom, and thus Claim 1 patentably defines over Shirakura and McGrew.

³ McGrew Col 5, lines 1-35, 62-68 and Col 6, lines 1-4.

Additionally Claim 4 is dependent upon the base amended Claim 1 which clearly patentably defines over Shirakura and McGrew as discussed above.

Applicants respectfully traverse the assertion in the outstanding Office Action that it was “well known in the optical projection art to adjust the spacing of an image projection lens system.”⁴

Further, Applicants respectfully traverse that one of skill in the art would be able to regulate the spacing of optical components “to obtain optimum focus” without undue experimentation or the teachings of the present invention.

M.P.E.P. § 2144.03 states that a rejection based upon common knowledge should be used judiciously,⁵ and that “it would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known.”⁶

Accordingly, it is respectfully submitted that the independent claims overcome the rejection based on obviousness and patentably define over the cited art.

⁴ outstanding Office Action page 4, paragraph 6. Applicants assume the rejection at page 4, paragraph 6 is directed to Claim 3 instead of Claim 4.

⁵ M.P.E.P. § 2144.03(a) states “official notice without documentary evidence...is permissible only in some circumstances”⁵ and that “these circumstances should be rare when an application is under final rejection or action under 37 CFR 1.113.”

⁶ M.P.E.P. § 2144.03(a), emphasis added.

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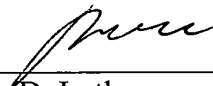
Consequently, in view of the present amendment, and in light of the above discussion, it is respectfully submitted that the amended claims patentably define over the prior art and are in condition for allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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